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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/567,292	02/06/2006	Ashok Adur	1200308NUS	6750
35227 7590 06/26/2009 POLYONE CORPORATION 33587 WALKER ROAD AVON LAKE, OH 44012				
EXAMINER				
BOYLE, ROBERT C				
ART UNIT		PAPER NUMBER		
1796				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/567,292

Applicant(s)

ADUR ET AL.

Examiner

ROBERT C. BOYLE

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 May 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3 and 9-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 9-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Any rejections stated in the previous Office Action and not repeated below are withdrawn. Claims 1, 3, 9-13 are pending. Claims 2 and 4-8 are cancelled.
3. The new grounds of rejection set forth below are necessitated by applicant's amendment filed on May 27, 2009. In particular, claims 1 and 9 have been amended to recite the elastomer is a "thermoplastic vulcanizate comprising polypropylene and EPDM" and the acid "stearic acid" has been removed from the Markush group. Thus, the following action is properly made FINAL.
4. The 112 rejections made in the previous Office Action are withdrawn. The 112 first paragraph rejection is withdrawn because the claims have been amended to read on a "thermoplastic vulcanizate comprising polypropylene and EPDM". It is determined that the examples provided in the specification would allow one of ordinary skill in the art to practice the invention as recited in the claims. The 112 second paragraph rejection is withdrawn because the amendment to "thermoplastic vulcanizate" clarifies the scope of the claim so the ingredients and products are distinguished from each other.

Claim Rejections - 35 USC § 103

5. Claims 1, 3, 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abdou-Sabet et al., (US 4,311,628) in view of Wszolek (US 3,578,614) and Gerber (US 5,145,913).
6. As to claims 1 and 3, Abdou-Sabet teaches thermoplastic vulcanizate using a phenolic curative, such as dimethylol-p-octyl phenol, in the presence of stannous chloride, zinc oxide and stearic acid (abstract; column 1, lines 19-58; column 3, lines 36-66; column 6, lines 23-68; column 8, lines 61-68; column 11, lines 19-68; Table V). Abdou-Sabet does not teach using one of: $MgCl_2$, $CaCl_2$, NaCl, or KCl. Abdou-Sabet does not teach using citric or oxalic acid.
7. Wszolek teaches using alpha-hydroxy-carboxylic acids, such as citric acid, as a curing rate accelerator for curable polymer systems, which include ethylene/propylene/diene systems (abstract; column 2, lines 1-27; column 3, lines 1-4, 26-52; column 7, lines 5-30). It would have been obvious to use the curing accelerators of Wszolek with the thermoplastic vulcanizate of Abdou-Sabet because such accelerators achieve a commercially acceptable curing rate in less than ½ hour below 250°C from a liquid (Wszolek: column 1, lines 43-58).
8. Gerber teaches using sodium chloride, magnesium chloride, and calcium chloride for curing phenolic resins (abstract; column 1, lines 16-54; column 2, line 52- column 3, line 55; column 4, lines 62-68; column 5, lines 44-65; column 8, line 29- column 9, line 44; column 10, lines 1-27; column 12, lines 6-50; column 20, line 26- column 21, line 31). It would have been obvious to one of ordinary skill in the art to use

the chlorides of Gerber with the thermoplastic vulcanizate of Abdou-Sabet because Gerber teaches the chlorides increase magnesium solubilization and replacement of magnesium hydroxide with the chloride increases the 24 hour room temperature compressive strength of the cured product (column 22, lines 42-48; column 24, lines 34-50).

9. As to claim 9, Abdou-Sabet teaches providing a catalyst system, as discussed in claim 1, in the presence of propylene and EPDM polymers and heating the mixture (column 8, line 61-column 9, line 9; Tables I-V).

10. As to claims 10-12, Abdou-Sabet teaches using 2.28 and 1.8 wt% of the metal activator and 4.32 wt% of phenolic curative in a Brabender mixer (column 4, line 51-column 5, line 17; column 9, lines 1-9; Tables IV and V).

11. As to claim 13, Wszolek teaches using 0.01-10.0 wt% of the carboxylic acid (column 2, lines 20-22). It is well settled that where prior art describes the components of a claimed compound or compositions in concentrations within or overlapping the claimed concentrations a prima facie case of obviousness is established. See MPEP 2144.05; *In re Harris*, 409 F.2d 1339, 1343, 74 USPQ2d 1951, 1953 (Fed. Cir 2005); *In re Peterson*, 315 F.2d 1325, 1329, 65 USPQ 3d 1379, 1382 (Fed. Cir 1997); *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936-37 (CCPA 1990); *In re Malagari*, 499 F.2d 1297, 1303, 182 USPQ 549, 553 (CCPA 1974).

12. Claims 1, 3, 9-13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Giller et al., (US 3,287,440) in view of Wszolek. The discussion with respect to Wszolek as set forth in paragraphs 5-11 above is incorporated here by reference.

13. As to claims 1 and 3, Giller teaches a thermoplastic vulcanizate produced by using non-brominated phenolic resins, containing methylol groups, for curing elastomers using stearic acid and a group II metal chloride and the corresponding process (column 1, lines 14-32, 42-64; column 3, lines 1-73; column 4, lines 1-12; column 5, lines 1-64; column 6, lines 53-75; column 7, lines 5-59; column 8, lines 20-45). It would have been obvious to one of ordinary skill in the art that group II metal chlorides include magnesium chloride and calcium chloride. Giller does not teach using citric or oxalic acid.

14. Wszolek teaches using alpha-hydroxy-carboxylic acids, such as citric acid, as a curing rate accelerator for curable polymer systems, which include ethylene/propylene/diene systems (abstract; column 2, lines 1-27; column 3, lines 1-4, 26-52; column 7, lines 5-30). It would have been obvious to use the curing accelerators of Wszolek with the thermoplastic vulcanizate of Abdou-Sabet because such accelerators achieve a commercially acceptable curing rate in less than ½ hour below 250°C from a liquid (Wszolek: column 1, lines 43-58).

15. As to claim 9, Giller teaches providing a catalyst system, as discussed in claim 1, in the presence of propylene and EPDM polymers and heating the mixture (column 6, lines 53-75).

16. As to claim 10, Giller teaches about 3-4 wt% of phenolic resin (column 3, lines 5-10; column 8, lines 20-68).
17. As to claim 11, Giller teaches using a Branbury mixer (column 7, lines 19-31).
18. As to claim 12, Giller teaches using 3-4 parts by weight halide (column 7, lines 19-31; column 8, lines 20-45).
19. As to claim 13, Wszolek teaches using 0.01-10.0 wt% of the carboxylic acid (column 2, lines 20-22). It is well settled that where prior art describes the components of a claimed compound or compositions in concentrations within or overlapping the claimed concentrations a prima facie case of obviousness is established. See MPEP 2144.05; *In re Harris*, 409, F.3d 1339, 1343, 74 USPQ2d 1951, 1953 (Fed. Cir 2005); *In re Peterson*, 315 F.3d 1325, 1329, 65 USPQ 3d 1379, 1382 (Fed. Cir 1997); *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936-37 (CCPA 1990); *In re Malagari*, 499 F.2d 1297, 1303, 182 USPQ 549, 553 (CCPA 1974).

Response to Arguments

20. Applicant's arguments regarding Ryang (US 5,962,608) are persuasive. As Ryang does not teach crosslinking thermoplastic elastomers, the 103 rejections in view of Ryan presented in the previous Office Action are withdrawn.
21. Applicant's arguments regarding Giller (US 3,287,440) are persuasive in part. As Giller does not teach oxalic acid or citric acid, the 103 rejections in view of Giller presented in the previous Office Action are withdrawn.

22. However, in response to applicant's argument based upon the age of the references, contentions that the reference patents are old are not impressive absent a showing that the art tried and failed to solve the same problem notwithstanding its presumed knowledge of the references. See *In re Wright*, 569 F.2d 1124, 193 USPQ 332 (CCPA 1977).

Conclusion

23. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT C. BOYLE whose telephone number is

(571)270-7347. The examiner can normally be reached on Monday-Friday, 9:00AM-5:00PM Eastern.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571)272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/R. C. B./
Examiner, Art Unit 1796

/Vasu Jagannathan/
Supervisory Patent Examiner, Art Unit 1796